

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Office**Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
|-----------------|-------------|----------------------|---------------------|

08/859,960 05/21/97 TOLT

Z 12179-P064US

EXAMINER

IN61/0309

KUNEHUND, R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

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1765

DATE MAILED:

03/09/99

Please find below and/or attached an Office communication concerning this application or proceeding.

**Commissioner of Patents and Trademarks**

## Office Action Summary

|                 |            |                |       |
|-----------------|------------|----------------|-------|
| Application No. | 08/859,960 | Applicant(s)   | Tolft |
| Examiner        | Kunemund   | Group Art Unit | 1765  |
|                 |            |                |       |

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

### Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

### Status

Responsive to communication(s) filed on September 29, 1998.

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

### Disposition of Claims

Claim(s) 1 to 26 is/are pending in the application.

Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1 to 26 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119 (a)-(d)

Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

### Attachment(s)

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of References Cited, PTO-892

Notice of Informal Patent Application, PTO-152

Notice of Draftsperson's Patent Drawing Review, PTO-948

Other \_\_\_\_\_

## Office Action Summary

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 to 3, 10 to 12, 14 to 19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al..

The Song et al. reference teaches a field emitter and a method of manufacturing one. On a substrate, of metal or ceramic, a patterned metal layer is formed with exposed substrate openings. A continuous layer of carbon is then deposited on to the patterned layer and substrate. The remainder of the device is then made. The carbon deposited on to the substrate is used as the active area, note figures. The sole difference between the instant claims and the prior art is the carbon being more of an emitter on the substrate. However, in the absence of unobvious results, it would have been obvious to one of ordinary skill in the art to determine through routine

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experimentation the optimum, operable area that the carbon film is more active, it is noted, that the reference uses the carbon on the substrate as the active area indicating to one of ordinary skill in the art the area of higher activity.

Claims 4 to 9, 13, and 20 to 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al. in view of Yoshioka et al..

The Song et al. reference is relied on for the same reasons as stated, supra, and differs from the instant claims in the means of changing substrate morphology. However, the Yoshioka et al reference teaches creating a field emitter using carbon layers by etching with acids and patterning , note, col. 13. It would have been obvious to one of ordinary skill in the art to modify the Song et al reference by the teachings of the Yoshioka et al reference to pattern etch in order to create the desired emitter areas and devices.

*Response to Applicants' Arguments*

Applicant's arguments filed September 29, 1998 have been fully considered but they are not persuasive.

Applicants' argument concerning claims 1 to 3 and 12 is noted. However, the claim is not as limited as argued. The change in the substrate can be done by depositing and patterning another layer prior to carbon layer formation (\*see claim 12) . This is an embodiment set forth by the inventors. The prior art clearly sets forth a substrate with a patterned layer then a carbon layer. Since, the structure is the same the result would inherently be the same. There is no

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evidence that the results would be different as the structure and process of the Song et al reference clearly meets the limitations and embodiments encompassed in the above claims.

Applicants' argument concerning claims 14 to 18 has been considered and not deemed persuasive . The above claims are limited solely to a product claim thus process limitations are given little weight in determining patentability. The Song et al reference teaches the emitter which structure is the same as claimed.

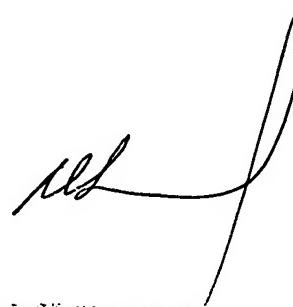
**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Kunemund whose telephone number is (703) 308-1091. The examiner can normally be reached on Monday through Friday from 7:00 to 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Breneman, can be reached on (703) 308-3324. The fax phone number for this Group is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



ROBERT KUNEMUND  
PRIMARY PATENT EXAMINER  
A.U. 4176

RMK

March 8, 1999